

### IN THE CLAIMS

1. (Currently Amended) A positive active material for a rechargeable lithium battery comprising:

a core comprising at least one compound represented by Formula 1; and

an active metal oxide shell formed on the core, the metal oxide being capable of stabilizing a structure of the active material, ~~and the metal oxide being free from lithium; wherein the metal of the metal oxide shell is a metal selected from the group consisting of at least one of Mg, Al, Co, K, Na, Ca, Mn, Ni, B, Sr, Ba, Ti, V, Cr, Fe, and Cu;~~

Formula 1



where  $0 \leq x \leq 0.3$ ,  $0 \leq y \leq 0.01$ ;

A is an element selected from the group consisting of Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

2. (Original) The active material of claim 1 wherein the metal oxide is an element selected from the group consisting of Mg, Al, Co, K, Na and Ca.

3. (Original) The active material of claim 1 wherein the positive electrode active material is formed by minute particles in an agglomerated state such that a particle size of the active material is between 0.1 and 100 $\mu\text{m}$ .

4. (Original) The active material of claim 1 wherein the positive electrode active material is  $\text{LiNi}_x\text{XCOXO}_2$ , where  $0 < x \leq 0.3$ .

5. (Original) The active material of claim 1 wherein the active material comprises at least one of the A, B and C metals, and a Mg composite metal oxide, and a surface of the active material is processed with minute particles of 15-15nm in size.

6. (Original) The active material of claim 1 wherein the active material comprises at least one of the A, B and C metals, and a double layer structure of a Al composite metal oxide processed on a surface of the active material.

7. (Original) A method of manufacturing an active material for a positive electrode used in lithium secondary batteries of Formula 1 below, the method comprising the steps of:  
producing a crystalline powder or a semi-crystalline powder of Formula 1;  
coating the crystalline powder or the semi-crystalline powder with metal alkoxide sol; and  
heat-treating the powder coated with the metal alkoxide sol,  
(Formula 1)



where  $0 < x \leq 0.3$ ,  $0 \leq y \leq 0.01$ , and

A is an element selected from the group consisting of Ni, Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

8. (Currently Amended) A rechargeable lithium battery comprising a positive active material, the positive active material comprising a core comprising at least one compound represented by Formula 1 and an active metal oxide shell formed on the core, the active metal oxide being capable of stabilizing a structure of the active material, ~~and the active metal oxide being free from lithium; wherein the metal of the metal oxide shell is a metal selected from the group consisting of at least one of Mg, Al, Co, K, Na, Ca, Mn, Ni, B, Sr, Ba, Ti, V, Cr, Fe, and Cu;~~

Formula 1



where  $0 \leq x \leq 0.3$ ,  $0 \leq y \leq 0.01$ ;

A is an element selected from the group consisting of Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

9. (Original) The method of claim 8 wherein the metal alkoxide is Mg-alkoxide.
10. (Original) The method of claim 7 wherein a concentration of metal in the metal alkoxide 1-10% by weight of alcohol.
11. (Original) The method of claim 7 wherein the heat-treating process is performed at a temperature between 400 and 900°C.
12. (Currently Amended) A positive active material for a rechargeable lithium battery comprising:  
a core comprising  $\text{LiCoO}_2$ ; and  
an active metal oxide shell formed on the core, ~~the active metal oxide shell being free from lithium, wherein the metal of the metal oxide shell is a metal selected from the group consisting of~~  
at least one of Mg, Al, Co, K, Na, Ca, Mn, Ni, B, Sr, Ba, Ti, V, Cr, Fe, and Cu.
13. (Original) The positive active material of claim 12 wherein a metal in the active metal oxide shell is an element selected from the group consisting of Mg, Al, Co, K, Na and Ca.
14. (Original) The positive active material of claim 13 wherein the metal in the active metal oxide shell is Al.
15. (Original) The method of claim 7 wherein the positive electrode active material is  $\text{LiNi}_{1-x}\text{Co}_x\text{O}_x$ , where  $0 < x \leq 0.3$ .

16. (Original) A lithium secondary battery using active material for a positive electrode of Formula 1 below, a surface of the active material being coated with metal oxide,

(Formula 1)



where  $0 < x \leq 0.3$ ,  $0 \leq y \leq 0.01$ , and

A is an element selected from the group consisting of Ni, Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti,

V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

17. (Original) The positive active material of claim 12 wherein the active metal oxide shell is processed with minute particles of 5-15nm in size.

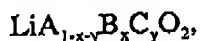
18. (Currently Amended) A positive active material for a rechargeable lithium battery prepared by producing a crystalline powder or a semi-crystalline powder of Formula 1;

coating the crystalline powder or the semi-crystalline powder with a metal alkoxide suspension; and

heat-treating the coated powder,

the positive active material comprising a core and an active metal oxide shell formed on the core, the metal oxide being capable of stabilizing the structure of the active material, ~~and the metal oxide being free from lithium; wherein the metal of the metal oxide shell is a metal selected from the group consisting of at least one of Mg, Al, Co, K, Na, Ca, Mn, Ni, B, Sr, Ba, Ti, V, Cr, Fe, and Cu;~~

Formula 1



where  $0 \leq x \leq 0.3$ ,  $0 \leq y \leq 0.01$ ;

A is an element selected from the group consisting of Co and Mn;

B is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al; and

C is an element selected from the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba, Ti, V, Cr, Fe, Cu and Al.

19. (Original) The positive active material of claim 18 wherein a metal in the active metal oxide shell is an element selected from the group consisting of Mg, Al, Co, K, Na and Ca.

20. (Original) The positive active material of claim 19 wherein the metal in the active metal oxide shell is Al.

21. (Original) The positive active material of claim 18 wherein the active metal oxide has an amorphous phase.

22. (Original) The positive active material of claim 18 wherein the positive active material is formed of minute particles in an agglomerated state such that a particle size of the active material is between 0.1 and 100  $\mu\text{m}$ .

23. (Original) The positive active material of claim 18 wherein the active metal oxide shell is processed with minute particles of 5-15nm in size.

24. (Currently Amended) A positive active material for a rechargeable lithium battery comprising:

a core comprising  $\text{LiCoO}_2$ ; and

an active  $\text{Al}_2\text{O}_3$  shell formed on the core, ~~the  $\text{Al}_2\text{O}_3$  shell being free from lithium, wherein~~  
the metal of the active  $\text{Al}_2\text{O}_3$  shell is a metal selected from the group consisting of at least one of  
Mg, Al, Co, K, Na, Ca, Mn, Ni, B, Sr, Ba, Ti, V, Cr, Fe, and Cu.